

Amendments to the Claims:

The following listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A vibration control method of a stage apparatus having a main stage body that is driven over a base plate, which controls vibration by applying a force to the base plate, ~~wherein~~the method comprising:

detecting a position of a center of gravity and of a major inertia axis of the stage apparatus,~~is detected~~ when vibration is applied to the base plate, ~~and~~

adjusting the force ~~is adjusted~~ based on the detected position of the center of gravity and the detected position of the major inertia axis, and

updating the force to be applied to the base plate based on the vibration of the base plate.

2. (Original) A vibration control method according to claim 1, wherein the vibration is applied to the base plate by driving the main stage body.

3. (Original) A vibration control method according to claim 1, wherein the position of the center of gravity and the position of the major inertia axis are detected for different positions of the main stage body relative to the base plate.

4. (Currently Amended) A stage apparatus having a main stage body that is driven over a base plate and a force actuator that applies a force to the base plate, comprising:

a detector that detects a position of a center of gravity and of a major inertia axis of the stage apparatus when vibration is applied to the base plate; and

a controller that controls the force applied to the base plate by the force actuator based on the position of the center of gravity and the position of the major inertia axis detected by the detector, the controller updating the force to be applied to the base plate based on an acceleration of the base plate.

5. (Currently Amended) A stage apparatus according to claim 4, wherein the force actuator ~~applied~~applies the force towards the detected position of the center of gravity.

6. (Original) An exposure apparatus that exposes a pattern of a mask held by a mask stage onto a substrate held by a substrate stage, wherein at least one of the mask stage and the substrate stage is the stage apparatus according to claim 4.

7. (Original) An exposure apparatus according to claim 6, wherein the exposure apparatus is a scanning exposure apparatus that exposes the pattern of the mask onto the substrate while synchronously scanning the mask and the substrate.

8. - 11. (Cancelled)

12. (Currently Amended) A stage apparatus having a main stage body that is driven over a base plate and a force actuator that applies a force to the base plate, comprising;
a memory that stores vibration characteristics of the base plate corresponding to different positions of the main stage body;
a vibration detector that detects the vibration characteristics of the base plate;
and

a controller that controls the force actuator based on the vibration characteristics detected by the vibration detector and stored in the memory, the controller updating the force to be applied to the base plate based on vibrations detected by the vibration detector.

13. (Original) A stage apparatus according to claim 12, wherein the memory stores the vibration characteristics of the base plate when the main stage body is driven.

14. (Original) An exposure apparatus that exposes a pattern of a mask held by a mask stage onto a substrate held by a substrate stage, wherein at least one of the mask stage and the substrate stage is the stage apparatus according to claim 12.

15. (Original) An exposure apparatus according to claim 14, wherein the exposure apparatus is a scanning exposure apparatus that exposes the pattern of the mask onto the substrate while synchronously scanning the mask and the substrate.

16. - 36. (Cancelled)

37. (New) A vibration control method according to claim 1, further comprising offsetting a reaction force caused by a movement of the main stage body by using the law of conservation of momentum.

38. (New) A vibration control method according to claim 1, further comprising transferring a reaction force caused by a movement of the main stage body to a reaction frame that is different from the base plate.

39. (New) A stage apparatus according to claim 4, further comprising a linear motor that drives the main stage body, the linear motor having a first member coupled to the main stage body and a second member that is movably supported by a bearing.

40. (New) A stage apparatus according to claim 4, further comprising a linear motor that drives the main stage body, the linear motor having a first member coupled to the main stage body and a second member that is supported by a reaction frame that is different from the base plate.

41. (New) A stage apparatus according to claim 12, further comprising a linear motor that drives the main stage body, the linear motor having a first member coupled to the main stage body and a second member that is movably supported by a bearing.

42. (New) A stage apparatus according to claim 12, further comprising a linear motor that drives the main stage body, the linear motor having a first member coupled to the main stage body and a second member that is supported by a reaction frame that is different from the base plate.